UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,423	07/12/2001	Dieter E. Staiger	DE919990011US1	3583

7590 05/05/2005	EXAMINER
William A. Kinnaman, Jr. IBM Corporation - MS P386 2455 South Road Poughkeepsie, NY 12601·	ROBERTS, BRIAN S

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/904,423	STAIGER, DIETER E.
	Examiner	Art Unit	
	Brian Roberts	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
     closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-28* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-28* is/are rejected.

7)☒ Claim(s) *1 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

    1.☒ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
       application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *3/21/2005*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

1.   The amendment filed on 4/15/2005 has been entered.

- Claim 14 has been cancelled.

- Claims 1-13, 15-28 are still pending.

- The previous rejection to claim 18 under 35 USC 112 second paragraph

  has been withdrawn.

Claim Objections

2.   Claims 1 and 19 are objected to because of the following informalities:

- Claims 1 and 19 "Original" should read "Amended"

- In the last line of claim 1, "currently transmitted" should read "currently

  being transmitted"

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4.   Claims 1-2, 5-13, 15, 18-28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over O'Neal et al in view of Barotti et al. (US 3,925,766).

-     In reference to claim 1,

O'Neal discloses a communications control method comprising of the steps:

- Determining the communications lines that will be used via the line address register (Column 3 line 65-68) (determining a subset of channels to be seized);

- Transforming data stream originating from the data source into a format that can be used for transmission by automatically directing storage access to one of 32, 128 byte storage blocks (abstract and column 3, lines 55-68) (transforming the data stream to a format permitting transmission over the subset);

- Transmitting and receiving data on any one or more of 32 communications lines simultaneously. (abstract)

O'Neal does not teach checking the priority of information currently being transmitted over busy channels and selecting one or more of said busy channels to take over control from transmitting data if said priority of information currently transmitted has a lower priority.

Bardotti et al. teaches the use of interrupts in a dynamically variable priority access system with a plurality of input/output channels that allow for the use of interrupts in order to control whether a given request has interrupting power over other information exchanges in progress at a lower priority level, or whether a request, when being serviced, may be interrupted by new interrupt requests at a higher priority level and having effective interrupting power. (column 2-3 lines 59-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of interrupts in a dynamically variable priority access system with a plurality of input/output channels as disclosed by Bardotti et al. to the invention that includes initially assigning a data transfer to one or more communications lines, real-time request are prioritized over no-real-time request, high-data-rate lines are favored over low-data rate lines, and the like disclosed by O'Neil, because doing so would allow for checking the priority of data currently being transmitted over the busy channels and selecting one or more of the busy channels to take over control from transmitting data if the priority of information currently transmitted had a lower priority.

- In reference to claim 2

O'Neil teaches a method that covers substantially all limitations of the parent claims. O'Neil further teaches a feature "which provides an adaptive priority allocation based on the transmission rate of a given communication line. This feature allows high speed lines to be accepted for service more frequently and reduces the probability of high speed lines being overrun due to servicing of lower speed lines." (column 4, lines 15-31) This enables the utilization of the maximum transmission rate of each communication line.

- In reference to claim 5-7

O'Neil teaches a method that covers substantially all limitations of the parent claims. O'Neil teaches a method of referencing a scan table that includes

information about the data source. The table contains information about the

number of communication lines to be used (column 15 lines 17-29), and the

priority of the data (column 15 lines 1-16) (column 4 lines 15-32).

    -   In reference to claim 9-11

O'Neil teaches a method that covers substantially all limitations of the

parent claims. O'Neil further teaches a method of determining which

communication lines are most efficient for transmission by referencing a scan

table storage element that contains the data parameters for one or more of the

32 lines of the transmission facility (column 4 lines 15-32). The data parameters

"include configuration information about each particular line (i.e., transmission

speed, number of bits per character, synchronous or asynchronous mode, etc.)"

The information is found in the scan table storage. (Figure 4)

    -   In reference to claim 12-13

O'Neil teaches a method that covers substantially all limitations of the

parent claims. O'Neil further teaches a mechanism to periodically access a scan

table containing status and control information associated with each

communication line. (column 1 lines 36-40). The priority of the information

currently being transmitted is determined using the scan table and interrupt

routines. (column 55 lines 24-68). Data transmit functions have a higher priority

than data receive functions allowing for busy channels to be taken over. (column

4 lines 1-14)

- In reference to claim 15 and 28

O'Neil further teaches a method and system that covers substantially all limitations of the parent claims. O'Neil teaches the buffering of the data stream. "Each line control block includes a two-byte buffer location for temporarily buffering data as it is being transferred from the host process or the FIG. 19 scanner". (column 6 lines 65-68, column 7 lines 1-2, Figure 3)

- In reference to claim 18,

O'Neil teaches a method that covers substantially all limitations of the parent claims. O'Neil further teaches that the microprocessor controlled communications multiplexer system is a user programmable device and it requires a program to be written and to be storage resistant in the user access memory before any operations can commence. O'Neil further teaches, "Once the PCS program has been prepared it may be stored on one of the Series/1 disks external to the PCS for actual use or at a later point in time." (Column 57 lines 44-58)

- In reference to claim 19

O'Neil discloses a device comprising:

- A bus access controller that determines the status of the communication lines; (Figure 1 and 3, column 6 lines 4-34)

- A bus channel control that allows the data to be transmitted concurrently; (Figure 1-2, column 6-8)

- Multiplexing unit for transmitting data synchronous or asynchronous over any combination of 32 communication lines. (Figure 1, column 48 lines 30-68, column 49 lines 1-12)

O'Neal does not teach checking the priority of information currently being transmitted over busy channels and selecting one or more of said busy channels to take over control from transmitting data if said priority of information currently transmitted has a lower priority.

Bardotti et al. teaches the use of interrupts in a dynamically variable priority access system with a plurality of input/output channels that allow for the use of interrupts in order to control whether a given request has interrupting power over other information exchanges in progress at a lower priority level, or whether a request, when being serviced, may be interrupted by new interrupt requests at a higher priority level and having effective interrupting power. (column 2-3 lines 59-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of interrupts in a dynamically variable priority access system with a plurality of input/output channels as disclosed by Bardotti et al. to the invention that includes initially assigning a data transfer to one or more communications lines, real-time request are prioritized over no-real-time request, high-data-rate lines are favored over low-data rate lines, and the like disclosed by O'Neil, because doing so would allow for checking the priority of

data currently being transmitted over the busy channels and selecting one or

more of the busy channels to take over control from transmitting data if the

priority of information currently transmitted had a lower priority.

- In reference to claims 20-22 and 24-26

O'Neil teaches a system that covers substantially all limitations of the

parent claims. O'Neil further teaches referencing a scan table that includes

information about the data source and the transmission facility. The table is

stored and accessed via a data and address register as shown in figure 4 and

described within the detailed description of figure 4. The table contains the

number of communication lines to be used (column 15 lines 17-29), the priority of

the data (column 15 lines 1-16) (column 4 lines 15-32), and the transmission

speed, number of bits per character, synchronous or asynchronous mode for

each line. O'Neil's technique inherently includes a configuration register because

such a register is necessary for storing information about the data source and

transmission facility.

- In reference to claim 27

O'Neil teaches a system that covers substantially all limitations of the

parent claims. O'Neil further teaches a controller transmit interrupt structure, and

transmit and receive hardware queues used in conjunction with various micro-

programmed task scheduling techniques to achieve the scheduling of receive

and transmit operations. O'Neil discloses the hardware in figures 1-3. O'Neil's

scheduling technique inherently includes an arbitration controller because such a

controller is necessary for scheduling.

- In reference to claims 8 and 23

O'Neil teaches a method and system that covers substantially all

limitations of the parent claims. O'Neil further discloses the concept of using a

table to store data about the data source. O'Neil's design choice stores

information about the number of communication lines to be used (column 15

lines 17-29), and the priority of the data (column 15 lines 1-16) (column 4 lines

15-32) in the table. The table does not include information about the maximum bit

rate of the data source that can enter the network, however, the max bit rate of

the data source that can enter the network is a characteristic of the data source.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to include the max bit rate of the data source in the table in

order to use the information to select the most efficient subset of channels for

transmission.

5.   Claims 3 and 4 are rejected under 35 U.S.C 103(a) as being unpatentable

over O'Neil in view of Bardotti et al. (US 3,925,766), as applied to the parent

claims, and in further view of Haskin.

- In reference to claim 3

The combination of O'Neil and Bardotti et al. teaches a method and

system that covers substantially all limitations of the parent claims. O'Neil further

teaches a method that allows for transmit data functions to take priority over receiving data functions and supports synchronous or asynchronous operation in any combination of 32 communication lines (column 48 lines 30-68).

O'Neil does not teach redistributing the data stream among a reduced subset of channels if one or more of the channels become available.

Haskin teaches the reallocation of the data being transmitted to channels that are functioning properly if a channel malfunctions. (column 5 lines 59-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of redistributing data disclosed by Haskins to the combination of O'Neil and Bardotti et al. to allow the redistribution of data among the communication lines in use if one or more communication lines became unavailable because it would improve the efficiency of the data transmission.

-   In reference to claim 4

The combination of O'Neil and Bardotti et al. teaches a method and system that covers substantially all limitations of the parent claims. O'Neil further teaches a method that allows for transmit data functions to take priority over receiving data functions and supports synchronous or asynchronous operation in any combination of 32 communication lines (column 48 lines 30-68).

The combination of O'Neil and Bardotti et al. does not teach redistributing the data among an extended subset of channels if one or more channels become available.

Haskin teaches the reallocation of data if a channel becomes available.

(column 5 lines 42-64)

It would have been obvious to one of ordinary skill in the art at the time of

the invention to add the method of redistributing data disclosed by Haskins to the

combination of O'Neil and Bardotti et al. to allow the redistribution of data among

the communication lines in use if one or more communication lines became

available because it would improve the efficiency of the data transmission.

6.   Claims 16 and 17 are rejected under 35 U.S.C 103(a) as being

unpatentable over O'Neil in view of Bardotti et al. (US 3,925,766), as applied to

the parent claims, and in further view of Blasbalg.

-   In reference to claim 16 and 17

The combination of O'Neil and Bardotti et al. teaches a system that covers

substantially all limitations of the parent claims. O'Neil further describes a data

stream originating from a data source that is transformed in order to be

transmitted on a plurality of communication lines.

The combination of O'Neil and Bardotti et al. does not disclose creating

data packets out of the data stream or using standard network protocol to

transmit the data.

Blasbalg discloses dividing the data stream into packets prior to

transmission and using standard network protocols to transmit the data

(abstract).

It would have been obvious to one of ordinary skill in the art at the time of the combination of O'Neil and Bardotti et al. to create data packets as disclosed in Blasbalg prior to transmitting the data, and then transmit the data using a standard network protocol in order to utilize the bandwidth of the bus more efficiently.

Response to Amendment

7.   Applicant's arguments with respect to claim 14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

- Otomo et al (US 4,074,232) pertains to packet switching in a network

- Hamada et al. (US 5,497,370) pertains to a network consisting of connected devices with a multiplexing unit for receiving a plurality of transmissions and a multiplexing unit for transmitting along a plurality of channels.

- Key et al. (US 3,842,405) pertains to a communications control unit integrated into a processor used to control data transfer.

- Bardotti (US 4,001,784) pertains to a data processing system having a plurality of input/output channels and physical resources dedicated to distinct and interruptible service levels.

- Stuebe (US 3,643,229) pertains to an interrupt arrangement for data processing systems.

- Rawson et al. (US 3,708,785) pertains to a data scanner for real time interfacing of a computer and plural remote units.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600